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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/842,931	04/26/2001	Kazunobu Uehara	F-6961	1189

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Jordan and Hamburg
122 East 42nd Street
New York, NY 10168

EXAMINER	
CASCHERA, ANTONIO A	
ART UNIT	**PAPER NUMBER**
2676	9

DATE MAILED: 06/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/842,931	Applicant(s) UEHARA ET AL.	
	Examiner Antonio A Caschera	Art Unit 2676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,4,6-9,11,12 and 14-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,4,6-9,11,12 and 14-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 April 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in the pending application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 3, 4, 6-9, 11, 12 and 14-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashida et al. (U.S. Patent 6,409,596 B1) in view of Yamashita et al. (U.S. Patent 5,982,377).

In reference to claims 1, 7 and 9, Hayashida et al. discloses a game device displaying a game in a virtual space (see lines 4-5 of abstract). Hayashida et al. discloses performing projection conversion of polygon coordinates in a three-dimensional space based on matrix calculations (see column 8, lines 29-36 and columns 8-9, lines 64-6). Hayashida et al. also discloses the game system forming images of three-dimensional objects in a viewpoint coordinate system (see column 8, lines 49-58). Hayashida et al. discloses a coordinate conversion unit for receiving vertex coordinates of polygons and conversion matrices data, converting the vertex coordinates of polygons using the conversion matrices data (see column 8,

lines 49-58). Hayashida et al. discloses an image processing unit synthesizing converted polygon data located in a frame buffer for display on a TV monitor (see column 9, lines 7-12 and #115, 116, #6 of Figure 3). Hayashida et al. also discloses the geometrizer unit for fixing the coordinate system to a view coordinate system in a three-dimensional space (see column 8, lines 57-58) and performing perspective conversion of shape data using conversion matrix data sent from the CPU (see column 8, lines 54-57). Note, the office interprets Hayashida et al. to inherently teach forming display images of all of the three-dimensional objects as Figures 4-6 of Hayashida et al. suggest just this by showing a full scene of the video game where viewable 3-D objects are drawn and displayed. Further, the displayed 3-D objects must have gone through geometrizer processing (see flow of #110-#6 of Figure 3) which, as stated above, performs the perspective conversion processing on polygon data. Also, Hayashida et al. discloses the images being synthesized and displayed on a monitor at the same time as Hayashida et al. discloses an image of a driving game being displayed after having synchronized background, character and game data together using a D/A converter (see column 9, lines 12-24). Hayashida et al. does not explicitly disclose reading out a new plurality of conversion matrices however Hayashida et al. does disclose the CPU renewing conversion matrix data after the viewpoint is switched (see column 14, lines 58-67) and therefore the office interprets the renewed conversion matrix data, to be different from previous matrix data because of viewpoint switching, and further read out by the geometrizer. Hayashida et al. does not explicitly disclose a plurality of conversion matrices however Yamashita et al. does. Yamashita et al. discloses a three-dimensional graphic displaying system and method allowing a viewpoint of a graphic to change when the graphic is rotated or moved (see lines 1-3 of abstract). Yamashita et al. discloses utilizing six conversion

matrices to perform coordinate conversion processing (see column 10, lines 6-12). Yamashita et al. discloses multiplying the six matrices together with elements of the first matrix comprising of coordinates of an original graphic (see column 10, lines 12-31). Note, the office interprets multiplying the above matrices together equivalent to the claimed language of applicants claims stating the matrices are, "...used at the same time..." Yamashita et al. discloses performing the coordinate conversion process on all coordinate points of the graphic (see column 10, lines 6-10) which the office interprets equivalent to vertex coordinates of applicant's claims as vertex coordinates are considered included in, "all coordinates of the graphic." Although Hayashida et al. discloses separate storage units for storing vertex coordinates of polygons and conversion matrices data (see columns 7-8, lines 67-4 and column 8, lines 49-50) neither Hayashida et al. nor Yamashita et al. explicitly disclose a storage unit storing at least vertex coordinates of polygons and data conversion matrices however, at the time the invention was made, it would have been obvious to one of ordinary skill in the art to store vertex coordinates of polygons and data conversion matrices in a manner as preferred by the designer or which best suits the application at hand. Applicant has not disclosed that storing vertex coordinates of polygons and data conversion matrices in a single storage unit provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with the separate storage units of Hayashida et al. because the exact location of where data is stored is seen as a matter of design choice as preferred by the designer or to which best suits the application at hand. Therefore, it would have been obvious to one of ordinary skill in this art to modify Hayashida et al. to obtain the invention as specified in claims 1, 7 and 9. It would have been obvious to one of ordinary

skill in the art at the time the invention was made to implement the gaming display device and gaming display methods of Hayashida et al. with the coordinate conversion techniques of Yamashita et al. in order to calculate graphic coordinates of an object which vary depending on a position of a user viewpoint (see lines 8-11 of abstract). Further, the, "utilization of a plurality of matrices at the same time," could, ultimately, lead to a conserved amount of processing cycles and therefore a more efficient processing system when multiple tasks are performed in parallel. Note, in reference to claim 9, Hayashida et al. also discloses an information recording medium storing a program that executes the conversion processes (see column 4, lines 65-67).

In reference to claims 3, 6, 11 and 14, Hayashida et al. and Yamashita et al. disclose all of the claim limitations as applied to claims 1, 4, 9 and 12 respectively. Although Hayashida et al. discloses the CPU renewing conversion matrix data after the viewpoint is switched (see column 14, lines 58-67), Hayashida et al. does not explicitly disclose repeatedly reading out new conversion matrix data. It would have been obvious to one of ordinary skill in the art at the time the invention was made to repeatedly read out data of perspective conversion matrices in order to update matrix conversion calculations, as matrices need to be updated as viewpoints are constantly switched.

In reference to claims 4, 8 and 12, claims 4, 8 and 12 are similar in scope to claims 1, 7 and 9 and therefore are rejected under similar rationale. Note, Hayashida et al. also discloses data busses connecting the various hardware units, in particular the shape data ROM (see #111 of Figure 3) and the conversion matrix storing RAM (see #103 of Figure 3) with the conversion unit, the geometrizer (see #110 of Figure 3). The office interprets these data lines to be equivalent to a transfer unit allowing for the transfer of data from the storage units. Hayashida et

al. also discloses the geometrizer unit for fixing the coordinate system to a view coordinate system in a three-dimensional space (see column 8, lines 57-58) and performing perspective conversion of shape data using conversion matrix data sent from the CPU (see column 8, lines 54-57). Hayashida et al. does not explicitly disclose reading out a new plurality of conversion matrices however Hayashida et al. does disclose the CPU renewing conversion matrix data after the viewpoint is switched (see column 14, lines 58-67) and therefore the office interprets the renewed conversion matrix data, to be different from previous matrix data because of viewpoint switching and further read out by the geometrizer. Hayashida et al. does not explicitly disclose transferring the plurality of perspective conversion matrices different from each other after transferring the polygon coordinate data however at the time the invention was made, it would have been obvious to one of ordinary skill in the art to transfer data in a certain way which best suits the application at hand or which is preferred by the designer. Applicant has not disclosed that transferring the plurality of perspective conversion matrices different from each other after transferring the polygon coordinate data provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with the data transferring methods of Hayashida et al. because the order in which such above data is transferred provides no immediate criticality to the application at hand, as seen by the office, since both pieces of data are needed for the conversion calculation. Therefore, it would have been obvious to one of ordinary skill in this art to modify Hayashida et al. to obtain the invention as specified in claims 4, 8 and 12. Note, in reference to claim 12, Hayashida et al. also discloses an information recording medium storing a program that executes the conversion processes (see column 4, lines 65-67).

In reference to claims 15-22, Hayashida et al. and Yamashita et al. disclose all of the claim limitation as applied to claims 1, 4, 7, 8, 9, 12, 1, 4 respectively above. Yamashita et al. discloses utilizing six conversion matrices to perform coordinate conversion processing (see column 10, lines 6-12). Yamashita et al. discloses multiplying the six matrices together with elements of the first matrix comprising of coordinates of an original graphic data (see column 10, lines 12-31). This original graphic data is multiplied by the different conversion matrices to produce converted coordinates (see columns 1-3 of 1st matrix in step #S16 of Figure 17 and column 10, lines 11-16 of Yamashita et al.).

Response to Arguments

3. Applicant's arguments filed 3/25/04 have been fully considered but they are not persuasive.

In reference to claims 1, 4, 7, 8, 9 and 12, applicant argues that neither the Hayashida et al. nor the Yamashita et al. references, taken alone or in combination with one another disclose or suggest forming multiple objects using a single polygon (see pages 16-18, starting at 2nd paragraph of page 16 of Applicant's Remarks). The office firmly disagrees as Hayashida et al. explicitly discloses shape data of polygons or 3-D data such as motorcycles, landforms and backgrounds stored in memory and used in perspective coordinate conversion for displaying of the data (see column 8, lines 49-61). Further, Hayashida et al. also discloses polygon data as a group of data relative of each of the apexes of a polygon, set in a precise manner relating to the shape structuring of motorcycles and backgrounds (see column 8, lines 64-67 and column 9, lines3-6). Even though Hayashida et al. is believed to comprise such a feature, the office points

out that such a feature is not explicitly brought out by the claims. The feature of, "forming multiple objects using a single polygon," is found nowhere throughout the claims which solely recite amended language, "...forming display images of all three-dimensional objects, which correspond to the plurality of polygons after the perspective projection conversion," (see lines 13-15 of claim 1). If anything the above recited language teaches using a plurality of polygons for forming the objects but not using a single polygon. Such a limitation as argued by the applicant is not found throughout the claims and therefore is not required within the prior art of Hayashida et al. and Yamashita et al.

References Cited

4. In addition to previous art made of record, the following is further prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

a. Hochmuth et al. (U.S. Patent 6,509,905 B2)

- Hochmuth et al. discloses a method and apparatus for processing primitives in a computer graphics system including coordinate vertex transformations.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Antonio Caschera whose telephone number is (703) 305-1391. The examiner can normally be reached Monday-Thursday and alternate Fridays between 7:00 AM and 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella, can be reached at (703)-308-6829.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

aac

4/30/04

MATTHEW C. BELLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600